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| **Ecology** |
| 1η εργασία |
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| ΠΤΔΕ ΦΛΩΡΙΝΑΣ |
| Α.Μ: 4578 |
| **Δημητρίου Ευάγγελος** |
| **27/3/2018** |
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Περιεχόμενα

[Ecology 3](#_Toc509873997)

[Heading 1 3](#_Toc509873998)

[Ecology and forests 4](#_Toc509873999)

[Heading 2 4](#_Toc509874000)

[Biodiversity 5](#_Toc509874001)

[Heading 3 5](#_Toc509874002)

[COMPLEX TABLE (less accessible) 5](#_Toc509874003)

[Class Schedule 5](#_Toc509874004)

[Habitat 6](#_Toc509874005)

[Niche 7](#_Toc509874006)

[Το γενεαλογικό μου δέντρο 8](#_Toc509874007)

# Ecology

## Heading 1

Ecology (from Greek:σπίτι οἶκος, "home ", or "environment"; -πνευματώδηλογία, "study of")[A] is the branch of biology[1] which studies the interactions among organisms and their environment. Objects of study include interactions of organisms with each other and with lifelessabiotic components of their environment. Subjects of interest include the biodiversity, distribution, biomass, and populations of organisms, as well as cooperation and competition within and between species. Ecosystems are dynamically interacting systems of organisms, the communities they make up, and the non-living components of their environment. Ecosystem processes, such as basic production, kids bornpedogenesis, nutrient cycling, and niche construction, regulate the flux of energy and matter through an environment. These processes are sustained by organisms with particular life history traits. Biodiversity means the varieties of species, genes, and ecosystems, enhances certain ecosystem services.

# Ecology and forests

## Heading 2

Forest types are distinguished from each other according to species composition (which develops in part according to the age of the forest), the density of tree cover, type of soils found there, and the geologic history of the forest region.

Soil conditions are distinguished according to depth, fertility, and the presence of perennial roots. Soil depth is important because it determines the extent to which roots can penetrate into the earth and, therefore, the amount of water and nutrients available to the trees. The soil of taiga forests is sandy and quickly drained. Deciduous forests have brown soil, richer than sand in nutrients, and less porous. Rainforests and savanna woodlands have a soil layer rich in iron or aluminum, which give the soils either a reddish or yellowish cast. The amount of water available to the soil, and therefore available for tree growth, depends on the amount of annual rainfall. Water may be lost by evaporation from the surface or by leaf transpiration. Evaporation and transpiration also control the temperature of the air in forests, which is always slightly warmer in cold months and cooler in warm months than the air in surrounding regions.

# Biodiversity

### Heading 3

Biodiversity, a portmanteau of "bio" (life) and "diversity", generally refers to the variety and variability of life on Earth. According to the United Nations Environment Programme (UNEP), biodiversity typically measures variation at the genetic, the species, and the ecosystem level.[1] Terrestrial biodiversity tends to be greater near the equator,[2] which seems to be the result of the warm climate and high primary productivity.[3] Biodiversity is not distributed evenly on Earth, and is richest in the tropics. These tropical forest ecosystems cover less than 10 percent of earth's surface, and contain about 90 percent of the world's species.[4] Marine biodiversity tends to be highest along coasts in the Western Pacific, where sea surface temperature is highest, and in the mid-latitudinal band in all oceans. There are latitudinal gradients in species diversity.[5] Biodiversity generally tends to cluster in hotspots,[6] and has been increasing through time,[7][8] but will be likely to slow in the future.[9

## COMPLEX TABLE (less accessible)

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| --- | --- | --- | --- | --- | --- | --- |
| LESSON | TOPIC | | ASSIGNMENT | Points | | DUE |
| 1 | What is Distance Learning? | | Wiki #1 | 10 | | March 10 |
| Presentation | 20 | |  |
| 2 | History & Theories | | Brief Paper | 20 | | March 24 |
| Spring Break | | | | | | |
| 3 | | Distance Learners | Discussion #1 | | 10 | April 7 |
| Group Project | | 50 | April 14 |
| 4 | | Media Selection | Blog #1 | | 10 | April 21 |

# Class Schedule

# lifecycle_apple.gifHabitat

The habitat of a species describes the environment over which a species is known to occur and the type of community that is formed as a result.[24] More specifically, "habitats can be defined as regions in environmental space that are composed of multiple dimensions, each representing a biotic or abiotic environmental variable; that is, any component or characteristic of the environment related directly (e.g. forage biomass and quality) or indirectly (e.g. elevation) to the use of a location by the animal."[25]:745 For example, a habitat might be an aquatic or terrestrial environment that can be further categorized as a montane or alpine ecosystem. Habitat shifts provide important evidence of competition in nature where one population changes relative to the habitats that most other individuals of the species occupy. For example, one population of a species of tropical lizards (Tropidurus hispidus) has a flattened body relative to the main populations that live in open savanna. The population that lives in an isolated rock outcrop hides in crevasses where its flattened body offers a selective advantage. Habitat shifts also occur in the developmental life history of amphibians, and in insects that transition from aquatic to terrestrial habitats. Biotope and habitat are sometimes used interchangeably, but the former applies to a community's environment, whereas the latter applies to a species' environment.[24][26][27]

# Niche

Definitions of the niche date back to 1917,[30] but G. Evelyn Hutchinson made conceptual advances in 1957[31][32] by introducing a widely adopted definition: "the set of biotic and abiotic conditions in which a species is able to persist and maintain stable population sizes."[30]:519 The ecological niche is a central concept in the ecology of organisms and is sub-divided into the fundamental and the realized niche. The fundamental niche is the set of environmental conditions under which a species is able to persist. The realized niche is the set of environmental plus ecological conditions under which a species persists.[30][32][33] The Hutchinsonian niche is defined more technically as a "Euclidean hyperspace whose dimensions are defined as environmental variables and whose size is a function of the number of values that the environmental values may assume for which an organism has positive fitness."[34]:71

Biogeographical patterns and range distributions are explained or predicted through knowledge of a species' traits and niche requirements.[35] Species have functional traits that are uniquely adapted to the ecological niche. A trait is a measurable property, phenotype, or characteristic of an organism that may influence its survival. Genes play an important role in the interplay of development and environmental expression of traits.[36] Resident species evolve traits that are fitted to the selection pressures of their local environment. This tends to afford them a competitive advantage and discourages similarly adapted species from having an overlapping geographic range. The competitive exclusion principle states that two species cannot coexist indefinitely by living off the same limiting resource; one will always out-compete the other. When similarly adapted species overlap geographically, closer inspection reveals subtle ecological differences in their habitat or dietary requirements.[37] Some models and empirical studies, however, suggest that disturbances can stabilize the co-evolution and shared niche occupancy of similar species inhabiting species-rich communities.[38] The habitat plus the niche is called the ecotope, which is defined as the full range of environmental and biological variables affecting an entire species.[24

# Το γενεαλογικό μου δέντρο